3. Claims 23-48, 57 and 96-105 are rejected as allegedly unpatentable, under the doctrine of nonstatutory obviousness type double patenting, over claims 11, 12, and 20 of copending Application No. 11/299,522 in view of Heuer *et al.* (US Patent No. 5,874,025) further in view of Bell (US Patent No. 5,426,121) and Preston *et al.* (US Patent No. 6,274,199).

4. Claims 23-48, 57 and 96-105 are provisionally rejected as allegedly unpatentable, under the doctrine of nonstatutory obviousness type double patenting, over claims 12-15 and 17-20 of copending Application No. 11/250,312 in view of Bell (US Patent No. 5,426,121) and Preston *et al.* (US Patent No. 6,274,199).

5. Claims 23-48, 57 and 96-105 are rejected as allegedly unpatentable, under the doctrine of nonstatutory obviousness type double patenting, over claims 1-10 and 13-18 of copending Application No. 11/471,763 in view of Heuer *et al.* (US Patent No. 5,874,025) further in view of Bell (US Patent No. 5,426,121) and Preston *et al.* (US Patent No. 6,274,199).

6. Claims 23-48, 57 and 96-105 are rejected as allegedly unpatentable, under the doctrine of nonstatutory obviousness type double patenting, over claims 6 and 9-13 of copending Application No. 11/849,082 in view of Heuer *et al.* (US Patent No. 5,874,025) further in view of Bell (US Patent No. 5,426,121) and Preston *et al.* (US Patent No. 6,274,199).

7. Claims 23-48, 57 and 96-105 are rejected as allegedly unpatentable, under the doctrine of nonstatutory obviousness type double patenting, over claims 9, 13-15, 17 and 23-24 of copending Application No. 11/126,839 in view of Heuer *et al.* (US Patent No. 5,874,025) further in view of Bell (US Patent No. 5,426,121) and Preston *et al.* (US Patent No. 6,274,199).

8. Claims 23-48, 57 and 96-105 are rejected as allegedly unpatentable, under the doctrine of nonstatutory obviousness type double patenting, over claims 11-23 of copending Application No. 11/116,152 in view of Heuer *et al.* (US Patent No. 5,874,025).

9. Claims 23-48, 57 and 96-105 are rejected as allegedly unpatentable, under the doctrine of nonstatutory obviousness type double patenting, over claims 21, 24, 25, 31, 35, 54, 57, 58, 66-

68 and 70 of U.S. Patent No. 7,001,452 in view of Heuer *et al.* (US Patent No. 5,874,025) further in view of Bell (US Patent No. 5,426,121) and Preston *et al.* (US Patent No. 6,274,199).

10. Claims 23-48, 57 and 96-105 are rejected as allegedly unpatentable, under the doctrine of nonstatutory obviousness type double patenting, over claims 18-20, 25-29, 43-45, 49-51 and 53 of U.S. Patent No. 6,843,837 in view of Heuer *et al.* (US Patent No. 5,874,025) further in view of Bell (US Patent No. 5,426,121) and Preston *et al.* (US Patent No. 6,274,199).

11. Claims 23-34, 38-44, 57 and 96-105 are rejected under 35 USC § 103(a) as allegedly obvious over Heuer *et al.* in view of Laks *et al.* (US Patent Application No. 2002/0051892).

12. Claims 35-38 and 45-48 are rejected under 35 USC § 103(a) as allegedly obvious over Heuer *et al.* in view of Laks *et al.* and further in view of Bell and Preston *et al.*

13. No claims were allowed.

III. Response to the Office Action

1. Claim Rejections under 35 U.S.C. §112, Second Paragraph

Claim 57 is rejected as allegedly indefinite for reciting the phrase "biocides listed in Table 1." Applicants respectfully traverse this rejection.

Claim 57 has been amended to recite "organic biocide is a compound selected from the group consisting of a fungicide, insecticide, moldicide, bactericide, or algaecide, or combinations thereof". Neither claim 57 nor any newly added claim recites the phrase "biocides listed in Table 1". Accordingly, withdrawal of this rejection is respectfully requested.

2. Double Patenting

Applicants respectfully request that the provisional obviousness type double patenting rejections be held in abeyance, until indication of allowable subject matter.

Claims 23-48, 57 and 96-105 are rejected as allegedly unpatentable, under the doctrine of nonstatutory obviousness type double patenting, over claims 21, 24, 25, 31, 35, 54, 57,

58, 66-68 and 70 of U.S. Patent No. 7,001,452 in view of Heuer *et al.* (US Patent No. 5,874,025) further in view of Bell (US Patent No. 5,426,121) and Preston *et al.* (US Patent No. 6,274,199).

U.S. Patent No. 7,001,452 ("the '452 patent") discloses a method and a wood preserving composition which is free of poly-aspartic acid and its derivatives comprising ***solutions*** of: 1) a metal compound; 2) complexing agents selected from ethanolamines, polyethylenimine, ammonia or a mixture of these compounds; and 3) a vinyl based polymer selected from poly(vinyl alcohol) (PVA), poly(acrylamide) (PA), poly(N-vinyl pyrrolidone) (PVP) and poly(N-isopropyl acrylamide) (PNIPAM). The '452 patent discloses metal amine solutions, suitable for the treatment of wood, that minimize metal leaching from the treated wood when exposed to water. Specifically, the '452 patent discloses copper amine compositions comprising copper, polyethylenimine and the vinyl based polymers poly(vinyl alcohol), polyacrylamide, poly(N-vinyl pyrrolidone), and poly(N-isopropyl acrylamide) that minimize leaching and prevent copper precipitation. (See last sentence of Background). The preservative compositions of the '452 patent do not contain poly-aspartic acid or its derivatives. A stated benefit of the compositions of the '452 patent is prevention of copper precipitation. (See last sentence of Background). There is no suggestion or motivation to modify the compositions of the '837 patent to contain particles of an inorganic biocide. To the contrary, the compositions of the '452 patent are designed to prevent precipitation of copper from the wood preservative compositions. Applicants respectfully submit that the Examiner has not established that the pending claims are *prima facie* obviousness over the '452 patent in view of Heuer *et al.* and further in view of Bell and Preston *et al.* and request withdrawal of this rejection.

Claims 23-48, 57 and 96-105 are rejected as allegedly unpatentable, under the doctrine of nonstatutory obviousness type double patenting, over claims 18-20, 25-29, 43-45, 49-51 and 53 of U.S. Patent No. 6,843,837 in view of Heuer *et al.* (US Patent No. 5,874,025) further in view of Bell (US Patent No. 5,426,121) and Preston *et al.* (US Patent No. 6,274,199). Applicants respectfully traverse this rejection.

U.S. Patent No. 6,843,837 ("the '837 patent") discloses a method and a wood preserving composition comprising ***solutions*** of: 1) a metal compound; 2) complexing agents

selected from ethanolamines, polyethylenimine, ammonia or a mixture of these compounds; and 3) a vinyl based polymer selected from poly(vinyl alcohol) (PVA), poly(acrylamide) (PA), poly(N-vinyl pyrrolidone) (PVP) and poly(N-isopropyl acrylamide) (PNIPAM). The '837 patent discloses metal amine solutions, suitable for the treatment of wood, that minimize metal leaching from the treated wood when exposed to water. Specifically, the '837 patent discloses copper amine compositions comprising copper, polyethylenimine and the vinyl based polymers poly(vinyl alcohol), polyacrylamide, poly(N-vinyl pyrrolidone), and poly(N-isopropyl acrylamide) that minimize leaching and prevent copper precipitation. (See last sentence of Background). A stated benefit of the compositions of the '837 patent is prevention of copper precipitation. (See last sentence of Background). There is no suggestion or motivation to modify the compositions of the '837 patent to contain particles of an inorganic biocide. To the contrary, the compositions of the '837 patent are designed to prevent precipitation of copper from the wood preservative compositions. Applicants respectfully submit that the Examiner has not established that the pending claims are *prima facie* obviousness over the '837 patent in view of Heuer *et al.* and further in view of Bell and Preston and request withdrawal of this rejection.

3. Claim Rejections under 35 U.S.C. §103(a)

a. Heuer *et al* in view of Laks *et al.*

Claims 23-34, 38-44, 57 and 96-105 are rejected under 35 USC § 103(a) as allegedly obvious over Heuer *et al.* in view of Laks *et al.* (US Patent Application No. 2002/0051892). Applicants respectfully traverse this rejection.

Heuer *et al.* does not disclose or suggest a method for preserving a wood product comprising micronized particles of an inorganic biocide with one or more organic biocides. Heuer *et al.* discloses wood preservatives comprising at least one copper compound and polyaspartic acid or a derivative, a triazole compound and optionally at least one synergistically complementing other fungicide and/or insecticide, ***an emulsifier*** and/or a small amount of ***alkanolamine***. As the Examiner pointed out in the Office Action (p. 13, ll. 6-9 of the OA), Heuer *et al.* does not teach micronized particles of an inorganic biocide. Moreover, the biocide (a copper compound) of Heuer *et al.* is ***dissolved as a clear solution***. (col. 2, ll. 9-10) Heuer *et al.* discloses that any insoluble

copper/polyaspartic acid addition products are not observed in the solution. (col. 2, ll. 10-12) Heuer *et al.* also teaches that despite the fact that the wood preservative comprises copper compounds, the two fungicides are ***emulsified or dissolved in the form of a clear fluid upon dilution with water*** (col. 2, ll. 14-18). In fact, Heuer *et al.* discloses that "the advantage of the compositions of Heuer *et al.* is the fact that, for example, triazole compounds, which are not soluble in water, exist in the novel compositions in the form of aqueous emulsions or clear aqueous concentrates. Clear aqueous fluids are formed upon dilution with water." (col. 2, ll. 18-23) Therefore, Heuer *et al.* does not teach a composition comprising micronized particles of an inorganic biocide or micronized particles of an organic biocide in preserving a wood product.

Because Laks *et al.* teaches a method for incorporating biocides into wood, in which the particles size of the components is allegedly 50-400 nanometers, the Examiner alleges that a skilled person would be motivated to make the micronized particles for penetrating wood from the combination of Laks *et al.* and Heuer *et al.*

Applicants respectfully disagree. Laks *et al.* discloses compositions and methods for ***incorporating dissolved/soluble biocides into nanoparticles*** that are made of a size that can be pressure-forced into wood or incorporated into wood composites. (Col. 2, line 66; column 3, line 3). The nanoparticles of Laks *et al.* are solid polymers with varying, designed degrees of porosity to control the diffusion rate of the trapped solute. (See paragraph 19). The ***solutes*** contained in the pores of the nanoparticles of Laks *et al* are biocides incorporated into the pores during polymerization. (See paragraph 19). The biocides incorporated into the nanoparticles of Laks *et al.* are solutes that are dissolved in solvent that allows release of the biocide into the wood at a controlled rate. Laks *et al.* also disclose that the biocides are "chosen according to (1) the target organism; (2) ***solubility characteristics, that is high solubility in the particle forming solvent***; (3) stability to the temperature and pH used to polymerize the monomer of choice... ." Laks *et al.* discloses biocides that ***are dissolved in an organic solvent*** and ***are not micronized particles.*** Examples in Laks *et al.* include tebuconazole dissolved in methanol (Example 1A) and chlorothalonil dissolved in N-methylpyrrolidone (Example 1A). The dissolved solutes of Laks *et al.* are not micronized particles of an inorganic or organic biocide.

Laks *et al.* is specifically directed to solving the problem of introducing biocides of limited solubility into wood. In particular, Laks *et al.* indicates that according to the thinking in the art, solubility was of such importance that biocides, such as chlorothalonil, having low solubility in organic solvents had to be dissolved in toxic hydrocarbon oils before application to wood. (See paragraphs 4 and 5 of *Laks et al.*) Rather than solving the problem by the use of particles of the biocide itself, Laks *et al.* teach the formation of polymer particles containing a ***dissolved organic biocide***, with care taken to select the polymer properties such that the particle gives the appropriate rate of biocide diffusion from the particle (see paragraphs 22 and 23). Essentially Laks *et al.* replaces the carrier in which the particles are insoluble with a polymer in which the biocide can be dissolved. On the whole, Laks *et al.* does not teach that micronized particles of biocides can effectively preserve wood. Accordingly, the combination of Heuer *et al.* with Laks *et al.* does not contain all of the elements of micronized particles of inorganic biocides.

Applicants respectfully submit that the Examiner's combination of references do not teach every element of the pending claims, nor do they render the claimed invention obvious. Accordingly, withdrawal of the rejection is respectfully requested.

b. Heuer *et al.* in view of Laks *et al.* and further in view of Bell and Preston *et al.*

Claims 35-38 and 45-48 are rejected under 35 USC § 103(a) as allegedly obvious over Heuer *et al.* in view of Laks *et al.* and further in view of Bell and Preston *et al.* Applicants respectfully traverse this rejection.

Bell *et al.* do not solve the deficiencies of Heuer *et al.* in view of Laks *et al.* Bell *et al.* disclose the combination of an alkoxylated diamine with water soluble or insoluble copper salt of chloride, sulfate, hydroxide, nitrate, formate, acetate, carbonate, bicarbonate or oxide for use as a wood preservative (column 1, lines 60-68, column 2, lines 1-60, column 3, lines 14-68, column 4, column 5, lines 1-30, 57-68). The copper salt is not a particle of an inorganic biocide. Instead, the salt is a present as a ***soluble*** alkoxylated diamine complex. (col. 1, line 65 - col. 2, line 5). Bell *et al.* is not directed toward the use of particles of biocides. The combination of Heuer *et al.*

and Laks *et al.* with Bell *et al.* does not contain all of the elements of the micronized particles of an inorganic biocide.

Preston *et al.* does not disclose the claimed invention. Preston *et al.* disclose a process for treating a wood substrate with a water-based formulation containing a wax for the purpose of conferring water repellency to the wood substrate. (See abstract). The waxes of Preston *et al.* are liquid emulsions and not micronized particles of an inorganic ***biocide***. (Column 1, lines 36-40; 50-56; column 2, lines 50-60; column 3, lines 1-8, 11, 12; column 4, lines 50-52; column 5, lines 6-19).

The methods of Preston *et al.* are conducted at an elevated temperature sufficient to melt any solid wax particles that may be formed by turbulent flow, during the treatment of wood.

> For the purposes of this invention, the temperature at which the emulsion is applied to the wood substrate is at or above that required to cause the wax present in the emulsion to change into a molten state. Preferably, the temperature is slightly, e.g.about 2 to 10.degree. C., higher than the melting point of the wax present in the emulsion, but preferably not higher than about 90.degree. C. to prevent the water present in the emulsion from flashing off.
>
> The water-based formulations employed in the process of the invention are preferably formulated such that they are stable at the elevated wood treatment temperatures, thereby allowing for penetration of the emulsions into the pores of the wood. It is also desirable that the surfactants chosen for the formulations have the maximum activity at the elevated process temperature, thereby resulting in the formation of emulsions having the lowest possible surface tension.

Treatment at an elevated temperature means that the waxes of Preston *et al.* are liquid (to maximize penetration into the wood pores), contain no micronized particles of biocides and therefore do not meet each limitation of the amended claims.

Therefore, Preston *et al.* also does not disclose or suggest the a method for preserving a wood product comprising micronized particles of inorganic biocide with one or more organic biocide.

Applicants respectfully submit that the Examiner's combination of references do not teach every element of the pending claims, nor do they render the claimed invention obvious. Accordingly, withdrawal of the rejection is respectfully requested.

IV. Conclusion.

Applicant believes that the above-referenced application is in condition for allowance. Reconsideration and withdrawal of the outstanding rejections and early notice of allowance to that effect is respectfully requested.

EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Director is hereby authorized by this paper to charge any additional fees during the entire pendency of this application, including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 13-3250, reference No. 38184.03402. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F. R. § 1.136(a)(3).

If the Examiner finds that a telephone conference would further prosecution of this application, the Examiner is invited to contact the undersigned at 202-835-7553.

Respectfully submitted,

MILBANK, TWEED, HADLEY & McCLOY LLP

Date: May 9, 2008

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